

LONDON- WEST MIDLANDS ENVIRONMENTAL STATEMENT

Volume 5 | Technical Appendices

CFA22 | Whittington to Handsacre

Baseline (SV-002-022)

Sound, noise and vibration

November 2013

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Department
for Transport

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Appendix SV-002-022

Environmental topic:	Sound, noise and vibration	SV
Appendix name:	Baseline	002
Community forum area:	Whittington to Handsacre	022

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1 Introduction

1.1 Structure of the sound, noise and vibration appendices

- 1.1.1 The sound, noise and vibration appendices comprise four sections. The first of these is an introduction to the relevant policy and methodology (Appendix SV-001-000). This relates to the sound, noise and vibration assessment for all community forum areas.
- 1.1.2 For the Whittington to Handsacre area (CFA22), the other three sections are as follows:
- baseline sound, noise and vibration (Appendix SV-002-022) (this appendix);
 - construction sound, noise and vibration (Appendix SV-003-022); and
 - operational sound, noise and vibration (Appendix SV-004-022).
- 1.1.3 Maps referred to within this appendix are contained in the Volume 5 map book.
- 1.1.4 This appendix includes details of the existing and future baseline sound environment within the area. It provides details of measurements and any other data collection which has been undertaken in order to obtain existing and future baseline sound levels.

1.2 Existing acoustic environment

- 1.2.1 The area is predominantly rural and characterised by small villages, hamlets and isolated properties, but is also close to several major settlements. The A38 is the main road in the area, connecting Birmingham and Sutton Coldfield in the south to Lichfield and Fradley before continuing north to Burton upon Trent and Derby. The A515 is another important road, linking Lichfield with Kings Bromley, acting as an arterial route through the surrounding countryside to the west of Alrewas and Burton on Trent. The M6 Toll is located on the western edge of the study area along with the West Coast Main Line, which bisects the village of Handsacre. Close to these roads and railways high baseline sound levels are experienced during the daytime. Night-time levels remain high in the vicinity of the A38. In areas further from these sources, lower baseline sound levels are experienced.
- 1.2.2 South of the A38 and around the villages of Whittington and Huddlesford the area is predominantly arable farm land with a number of isolated residences and farms. The noise climate is dominated by road traffic noise from the A51 and A38, as well as traffic on local roads (Darnford Lane, Cappers Lane and Common Lane) with frequent contributions from natural sound sources (e.g. tree rustle, bird song and livestock). Typical baseline noise levels range from 55 to 60dB¹ during daytime, reducing to 50 to 55dB² at night-time in these areas.
- 1.2.3 In the residential area of Streethay, west of the A38, the soundscape is characterised by transportation noise sources, namely the A38, the A5127 (Trent Valley Road) and

¹ 16 hour daytime (07:00 to 23:00) equivalent continuous sound pressure level, L_{pAeq,16hr}.

² 8 hour night-time (23:00 to 07:00) equivalent continuous sound pressure level, L_{pAeq,8hr}.

the Birmingham to Derby train line which bounds the southern edge of the village. North of the A38 and south of Fradley, the character is urban fringe and is dominated by major business and industrial uses. The soundscape is dominated by industrial and transportation noise. Typical baseline noise levels in Streethay are 55 to 60dB³ during the day and 50 to 55dB⁴ at night.

- 1.2.4 Between Curborough and Handsacre the area is rural in character, with large areas of agricultural land used for both livestock and arable farming. The noise climate is dominated by natural sound sources (e.g. tree rustle, bird song and livestock) and agricultural activity noise with contributions from nearby transportation sources namely the A515, Wood End Lane, A513, and distant railway noise from the West Coast Main Line. In this region, the typical baseline daytime noise levels range 60 to 65dB and can be 50dB in the most isolated areas. At night, the baseline noise level is generally 45 to 50dB.
- 1.2.5 In the residential areas of Handsacre, the soundscape is dominated by noise from the passage of trains along the West Coast Main Line together with community noise (local road traffic noise and normal every day residential activities). The typical baseline noise levels in Handsacre are 55 to 60dB during the day and 40 to 45dB at night.

³ 16 hour daytime (07:00 to 23:00) equivalent continuous sound pressure level, $L_{pAeq,16hr}$.

⁴ 8 hour night-time (23:00 to 07:00) equivalent continuous sound pressure level, $L_{pAeq,8hr}$.

2 Scope, assumptions and limitations

2.1 Sound and vibration sensitive receptors

2.1.1 Within the Whittington to Handsacre area, 162 assessment locations have been defined to represent all sound and vibration sensitive receptors within the spatial scope. The assessment locations are shown on the detailed maps in map series SV-03 and SV-04 (Volume 5 CFA22 map book). Within this area, the following types of sound and vibration sensitive receptors have been identified:

- residential areas;
- education facilities;
- community centres and meeting facilities;
- places of worship;
- institutional establishments; and
- offices.

2.2 Local engagement

2.2.1 Meetings have been held with representatives of North Warwick District Council regarding the approach which has been taken to baseline monitoring within this area, the identification of noise and vibration sensitive receptors and the selection of assessment locations.

2.2.2 Changes suggested during these meetings have influenced the assessment locations used and the monitoring undertaken and reported in this appendix.

2.2.3 Representatives of North Warwick District Council have also attended baseline sound measurements in this area and witnessed the measurement procedures used.

2.2.4 Local engagement through community forum meetings has also provided the opportunity for local groups to suggest appropriate baseline sound monitoring locations. Any suggestions received from these groups have been considered and influenced the monitoring undertaken and reported in this document.

2.3 Existing baseline sound monitoring locations

2.3.1 Baseline monitoring locations have been defined in order to provide representative sound levels at each assessment location within the study area.

2.3.2 Baseline information has been gathered incrementally through successive rounds of field surveys focused on locations where likely significant effects are forecast.

2.3.3 Areas within the study area where baseline data is required have been broken down into a series of smaller sub-areas. Each of these is representative of clusters of receptors where the noise climate is influenced by the same sound sources. Within each of the sub-areas, a programme of unattended monitoring has been undertaken, supplemented by attended measurements to ensure good coverage at all the identified sound assessment locations. All attended measurements have been

undertaken simultaneously with the unattended measurements to allow a direct comparison between assessment locations to be established.

2.3.4 After each successive round of field surveys, the collected data has been analysed, and based upon feedback from on-going stakeholder dialogue, the measurement locations refined for subsequent rounds.

2.3.5 Maps showing the baseline sound monitoring locations and assessment locations with this area are included in map series SV-03 and SV-04 (Volume 5 CFA22 map book).

2.4 Climate change

2.4.1 Climate change is unlikely to affect baseline sound levels or forecast sound levels from the Proposed Scheme.

3 Environmental baseline

3.1 Existing baseline data collection methodology

- 3.1.1 The overall approach to baseline data collection for sound noise and vibration is described in Appendix SV-001-000.
- 3.1.2 Over the Whittington to Handsacre area, a number of baseline sound measurements have been undertaken. These have been classified as follows:
- 14 long-term measurements – unattended measurements of several days duration; and
 - 39 short-term measurements – attended measurements typically of 30 minutes duration (generally repeated at different times of day).
- 3.1.3 The following paragraphs (3.1.4 to 3.1.10) describe a select number of the total number of baseline measurement locations where baseline measurements were undertaken.
- 3.1.4 In Handsacre, long-term noise monitoring has been undertaken at two noise sensitive receptors located adjacent to the West Coast Main Line, and supplemented with a series of short-term satellite measurements at nearby noise sensitive receptors. Satellite measurements were also carried out in the residential area of Handsacre on Tuppenhurst Lane, Bridge Road, Shropshire Brook Road, Lichfield Road, St John's Avenue, Handsacre Crescent and Rowen Drive. To assess the noise climate in the more rural areas south of Handsacre, further satellite noise measurements were performed along the B5014 Lichfield Road, Shaw Lane and Tuppenhurst Lane, with a long-term noise monitoring position being located on the eastern edge of Handsacre on Tuppenhurst Lane.
- 3.1.5 In the agricultural areas in the vicinity of Curborough, between the A515 and the West Coast Main Line, measurements were carried out at a number of isolated noise sensitive receptors. Two seven-day long-term measurement positions were set up on farmland adjacent to Wood End Lane together with a number of simultaneous short-term measurements in the surrounding area. Measurements were carried out in the vicinity of residential properties on Wood End Lane, Park Lane and Netherstowe Lane. Each short-term measurement being visited several times of the day and night. Additional long and short-term measurements were also carried out at three noise sensitive receptors on Netherstowe Lane.
- 3.1.6 A long-term noise monitoring position was set up at the rear of noise sensitive properties on Wellington Crescent in order to assess the soundscape in the agricultural area on the western side of Fradley Industrial Park. Further satellite sample measurements were undertaken along the western edge of the industrial estate on Wood End Lane, with each monitoring location being visited at several times of the day and night.
- 3.1.7 In Streethay, transportation noise dominates the soundscape. A continuous long-term measurement was carried out within a small group of residential properties adjacent to the A38 junction north of Streethay, while short-term satellite measurements were

undertaken throughout the main residential area. Monitoring was undertaken at noise sensitive receptors on Burton Road, Dyott Close, Burton Old Road, Ash Tree Lane and Bexmore Drive.

- 3.1.8 In Huddlesford long-term noise monitoring locations were set up at two noise sensitive receptors on Cappers Lane and Huddlesford Lane, while simultaneous satellite measurements were undertaken near to residential properties on Cappers Lane, Huddlesford Lane, Broad Lane and Park Lane. A further short-term measurement was also conducted within Britannia Enterprise Industrial Park on Europa Way.
- 3.1.9 In the area between the village of Whittington and the A38, long and short-term baseline measurements were undertaken at properties along Darnford Lane, with additional satellite measurements carried out at noise sensitive properties on Whittington Common Road and Back Lane, on the western edge of the residential area of Whittington.
- 3.1.10 To investigate the noise climate of the area in the vicinity of Whittington Heath Golf Club and Whittington Heath Barracks, a long-term monitoring location was set near Church Farm. This long-term measurement was supplemented by sample satellite measurements at two noise sensitive receptors located along Tamworth Road and an additional short-term monitoring position on Nottingham Road, in a residential area adjacent to the military barracks.

3.2 Existing baseline sound levels

- 3.2.1 From the measurements described in Section 3.1, baseline sound levels have been ascertained for each assessment location within this area. These levels are presented in terms of the following key sound indicators:
 - baseline levels used for the operational sound assessment:
 - $L_{pAeq,16hr\text{ weekday}}$ daytime (07:00-23:00) sound pressure level;
 - $L_{pAeq,8hr\text{ weekday}}$ night-time (23:00-07:00) sound pressure level;
 - arithmetic average of $L_{pAFmax,5min}$ night-time sound pressure level; and
 - highest $L_{pAFmax,5min}$ night-time sound pressure level.
 - baseline levels used for the construction sound assessment:
 - daytime L_{pAeq} sound pressure level (Monday to Friday 07:00-19:00; Saturday 07:00-13:00);
 - evening/weekend L_{pAeq} sound pressure level (Monday to Friday 19:00-23:00; Saturday 13:00-23:00; Sunday 07:00-23:00); and
 - night-time L_{pAeq} sound pressure level (Monday to Sunday 23:00-07:00).
- 3.2.2 These values are presented in Table 1. The data source coding included within this table details how the baseline sound levels allocated to each assessment location have been derived. This coding is summarised in Table 2 and explained in detail in Appendix SV-001-000.

Table 1: Existing baseline sound levels

Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁵
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq,T}	Evening/ weekend L _{pAeq,T}	Night-time L _{pAeq,T}	
277	Lysways Lane, Hanch, Lichfield	CN009S	45.4	33.6	52.6	57.1	46.1	44.6	35.3	2,C,ii,c
572	Lichfield Road, Armitage, Rugeley	CN007S	42.0	32.6	51.6	56.1	42.7	41.2	34.3	2,C,ii,b
623	Tuppenhurst Lane, Rugeley	CN034L	54.2	48.0	53.8	81.3	53.6	52.6	48.6	1,A,i,b
642	Lichfield Road, Armitage, Rugeley	CN007S	57.0	37.6	59.6	64.1	57.7	56.2	39.3	2,BC,ii,b
746	Tuppenhurst Lane, Rugeley	CN005S	50.2	34.0	50.5	58.0	51.6	48.0	34.3	2,A,i,b
3228	Foxleigh Meadows, Handsacre, Rugeley	CN003S	53.4	41.6	52.8	66.8	54.2	52.7	43.2	2,C,ii,c
5666	Tuppenhurst Lane, Rugeley	CN001S	57.1	44.3	59.5	70.4	57.9	56.4	45.9	2,A,i,c
5738	Alandale Avenue, Rugeley	CN072S	58.0	51.0	55.8	71.9	58.0	57.0	50.6	2,B,ii,c
5818	Harvey Road, Rugeley	CN001S	57.1	44.3	59.5	70.4	57.9	56.4	45.9	2,A,i,c
6025	Tuppenhurst Lane, Rugeley	CN045L	45.4	39.4	46.0	68.1	46.8	43.2	39.7	1,A,i,b
6042	Bridge Road, Rugeley	CN002S	45.9	41.3	49.5	69.2	46.7	45.2	42.9	2,B,ii,c
6336	Proctor Road, Rugeley	CN001L	53.6	49.3	58.8	77.6	54.4	52.8	50.9	1,C,ii,b
6354	Johns Avenue, Rugeley	CN072S	58.0	51.0	55.8	71.9	58.0	57.0	50.6	2,B,ii,c
6455	Millcroft Way, Handsacre, Rugeley	CN004S	54.8	40.0	64.2	77.3	55.5	54.0	41.6	2,B,ii,c
6492	Lichfield Road, Handsacre, Rugeley	CN034L	51.2	48.0	53.8	81.3	50.6	49.6	48.6	1,C,ii,b
6574	Spode Avenue, Rugeley	CN001L	50.6	46.3	52.8	71.6	51.4	49.8	47.9	1,A,i,b

⁵ Table 2 provides a data source coding key.

Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁵
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq,T}	Evening/weekend L _{pAeq,T}	Night-time L _{pAeq,T}	
6607	Barn Road, Handsacre, Rugeley	CN034L	51.2	45.0	53.8	81.3	50.6	49.6	45.6	1,B,ii,b
6861	Fair View, Rugeley	CN004S	56.8	42.0	64.2	77.3	57.5	56.0	43.6	2,B,ii,c
6934	Lichfield Road, Armitage, Rugeley	CN004S	56.8	42.0	58.2	71.3	57.5	56.0	43.6	2,C,i,c
7044	Handsacre Crescent, Rugeley	CN074S	43.3	33.0	42.8	47.9	43.3	42.5	32.5	2,C,ii,c
7136	Hill Top View, Rugeley	CN074S	43.3	33.0	42.8	47.9	43.3	42.5	32.5	2,B,ii,c
7181	Lichfield Road, Armitage, Rugeley	CN075S	57.1	32.9	48.8	53.9	57.0	56.0	32.4	2,BC,ii,c
7293	Millcroft Way, Handsacre, Rugeley	CN004S	59.8	45.0	64.2	77.3	60.5	59.0	46.6	2,A,i,c
7426	Rowan Drive, Handsacre, Rugeley	CN075S	53.1	30.9	47.7	64.2	53.0	52.0	30.4	2,BC,ii,c
7467	Rowan Drive, Handsacre, Rugeley	CN034L	51.2	42.0	47.8	75.3	50.6	49.6	42.6	1,BC,ii,b
7597	Chestnut Close, Handsacre, Rugeley	CN034L	54.2	45.0	53.8	81.3	53.6	52.6	45.6	1,B,ii,b
7621	Chestnut Close, Handsacre, Rugeley	CN034L	51.2	45.0	53.8	81.3	50.6	49.6	45.6	1,B,ii,b
7798	Lichfield Road, Armitage, Rugeley	CN004S	56.8	42.0	64.2	77.3	57.5	56.0	43.6	2,B,ii,c
7844	Tuppenhurst Lane, Rugeley	CN045L	45.4	39.4	46.0	68.1	46.8	43.2	39.7	1,A,i,b
7852	Tuppenhurst Lane, Rugeley	CN045L	45.4	39.4	46.0	68.1	46.8	43.2	39.7	1,A,I,b
7913	Highfields Avenue, Rugeley	CN001S	57.1	44.3	59.5	70.4	57.9	56.4	45.9	2,A,i,c
10433	Darnford Lane, Lichfield	CN023S	50.7	46.9	55.4	72.2	52.4	49.6	46.4	2,BC,ii,c
10729	Cappers Lane, Lichfield	CN050L	54.8	51.2	58.7	71.6	55.0	52.9	50.3	1,A,i,b
10745	Europa Way, Britannia Enterprise Park, Lichfield	CN022S	58.2	49.1	52.2	58.0	61.2	59.3	50.2	2,A,ii,c
11741	Darnford Lane, Lichfield	CN023S	48.7	45.9	53.4	70.2	50.4	47.6	45.4	2,BC,ii,C

Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁵
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq,T}	Evening/weekend L _{pAeq,T}	Night-time L _{pAeq,T}	
12749	Jockey Hill, Tamworth Road, Lichfield	CNo82S	68.3	55.3	77.6	84.0	68.9	66.8	56.2	2,BC,ii,C
13325	Titan Way, Britannia Enterprise Park, Lichfield	CNo22S	55.2	46.1	46.2	52.0	58.2	56.3	47.2	2,C,i,C
17473	Ellfield House, Whittington Common Road, Whittington, Lichfield	CNo07L	40.1	36.7	44.8	65.2	41.8	39.1	36.3	1,C,ii,b
17519	Darnford Lane, Lichfield	CNo07L	44.1	40.7	44.8	65.2	45.8	43.1	40.3	1,C,i,b
17578	Marsh Lane, Whittington, Lichfield	CNo07L	43.1	39.7	48.8	69.2	44.8	42.1	39.3	1,C,ii,c
17597	Darnford Lane, Lichfield	CNo07L	48.1	44.7	52.8	73.2	49.8	47.1	44.3	1,A,i,b
17721	Cappers Lane, Lichfield	CNo06L	56.2	51.2	59.2	78.8	56.9	55.2	50.7	1,BC,ii,c
17748	Park Lane, Huddlesford, Lichfield	CNo21S	69.2	64.1	81.9	91.0	57.0	55.6	58.9	2,C,ii,b
17758	Cappers Lane, Lichfield	CNo81S	69.2	64.1	81.9	91.0	69.4	67.3	62.5	2,BC,ii,c
17767	Cappers Lane, Lichfield	CNo81S	67.2	62.1	77.9	87.0	67.4	65.3	60.5	2,C,ii,c
17774	Cappers Lane, Lichfield	CNo81S	62.2	57.1	72.9	82.0	62.4	60.3	55.5	2,C,i,c
17785	Cappers Lane, Lichfield	CNo81S	65.2	60.1	73.9	83.0	65.4	63.3	58.5	2,C,i,c
17800	Cappers Lane, Lichfield	CNo81S	62.2	57.1	77.9	87.0	62.4	60.3	55.5	2,C,i,c
18106	Wood End Lane, Elmhurst, Lichfield	CNo10S	53.9	40.9	53.4	62.3	54.6	51.5	40.2	2,C,i,c
18213	Nanscawen Road, Fradley, Lichfield	CNo04L	45.0	41.4	48.7	58.7	46.2	44.2	42.6	1,BC,ii,c
18281	Lancaster Road, Fradley Park, Lichfield	CN130S	58.2	52.1	68.8	72.0	61.1	58.2	52.1	2,C,ii,c
18521	Lime Way, Streethay, Lichfield	CNo78S	58.8	54.2	60.0	61.2	59.2	56.7	53.9	2,C,ii,c
18547	Rayson Close, Streethay, Lichfield	CNo78S	55.8	51.2	60.0	61.2	56.2	53.7	50.9	2,BC,ii,c
18550	Rayson Close, Streethay, Lichfield	CNo78S	59.8	55.2	62.0	63.2	60.2	57.7	54.9	2,C,ii,c

Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁵
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq,T}	Evening/weekend L _{pAeq,T}	Night-time L _{pAeq,T}	
18558	Rayson Close, Streethay, Lichfield	CN079S	54.5	49.4	63.6	69.1	54.9	52.6	49.1	2,B,ii,c
18600	Elmhurst, Lichfield	CN125S	62.4	39.2	51.5	57.0	64.0	62.4	39.2	2,A,i,c
18665	Wood End Lane, Fradley, Lichfield	CN014S	41.8	40.5	53.2	63.2	42.5	41.5	41.3	2,BC,ii,c
18978	Wood End Lane, Fradley, Lichfield	CN014S	51.8	50.5	55.2	65.2	52.5	51.5	51.3	2,C,i,c
19191	Curborough, Lichfield	CN013S	60.1	52.7	56.2	66.2	60.8	57.6	51.9	2,C,i,c
19720	Lichfield Road, Hanch, Lichfield	CN011S	59.3	41.6	60.6	65.1	60.1	58.5	43.3	2,C,i,c
19867	Lichfield Road, Hanch, Lichfield	CN009S	51.4	39.6	61.6	66.1	52.1	50.6	41.3	2,BC,ii,c
20009	Lichfield Road, Hanch, Lichfield	CN011S	57.3	39.6	60.6	65.1	58.1	56.5	41.3	2,BC,ii,c
20044	Shaw Lane, Hanch, Lichfield	CN009S	56.4	44.6	66.6	71.1	57.1	55.6	46.3	2,B,ii,c
20090	Shaw Lane, Hanch, Lichfield	CN005S	53.2	34.0	50.5	58.0	54.6	51.0	34.3	2,C,ii,c
20124	Lysways Lane, Hanch, Lichfield	CN009S	49.4	37.6	56.6	61.1	50.1	48.6	39.3	2,C,i,c
20138	Shaw Lane, Hanch, Lichfield	CN034L	59.2	53.0	58.8	86.3	58.6	57.6	53.6	1,C,ii,c
20178	Curborough, Lichfield	CN048L	42.4	38.9	45.6	68.7	43.9	42.4	38.8	1,BC,ii,c
20395	Wood End Lane, Curborough, Lichfield	CN126S	67.8	59.9	81.3	84.0	69.4	67.8	59.8	2,C,i,c
20441	Wood End Lane, Curborough, Lichfield	CN035L	46.1	42.2	51.2	63.1	46.9	45.0	42.1	1,A,i,b
20508	Elmhurst, Lichfield	CN125S	62.4	39.2	51.5	57.0	64.0	62.4	39.2	2,A,i,c
20527	Bromley Hayes, Lichfield	CN008S	53.5	47.7	70.2	76.0	56.8	51.1	50.0	2,BC,ii,c
20579	Common Farm, Riley Hill, Lichfield	CN008S	44.5	32.7	57.2	63.0	47.8	42.1	35.0	2,BC,ii,c
21095	Wood End Lane, Curborough, Lichfield	CN012S	63.4	55.8	77.5	80.0	66.6	60.9	58.2	2,C,i,c

Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁵
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq,T}	Evening/ weekend L _{pAeq,T}	Night-time L _{pAeq,T}	
21136	Wood End Lane, Curborough, Lichfield	CN003L	47.1	42.5	59.4	69.5	47.7	44.6	41.7	1,BC,ii,b
21213	Bromley Hayes, Lichfield	CN035L	43.1	39.2	45.2	57.1	43.9	42.0	39.1	1,C,ii,c
21312	Burton Old Road, Lichfield	CN019S	51.2	45.0	53.8	81.3	51.6	49.7	44.7	2,B,ii,b
21441	Burton Road, Streethay, Lichfield	CN018S	65.1	58.7	73.5	78.5	66.0	64.2	58.4	2,C,i,c
21549	Bailye Close, Streethay, Lichfield	CN080S	56.7	49.8	60.1	63.5	57.1	55.1	49.5	2,C,i,c
21649	Bexmore Drive, Streethay, Lichfield	CN018S	62.1	55.7	73.5	78.5	63.0	61.2	55.4	2,BC,ii,c
21694	Bailye Close, Streethay, Lichfield	CN017S	51.4	46.0	61.0	66.0	54.3	50.4	45.7	2,BC,ii,c
21739	Bexmore Drive, Streethay, Lichfield	CN080S	51.7	44.8	56.1	59.5	52.1	50.1	44.5	2,B,ii,c
22232	Netherstowe Lane, Lichfield	CN015S	44.3	39.7	47.2	55.0	43.7	44.3	39.7	2,B,ii,c
22329	Netherstowe Lane, Lichfield	CN049L	42.7	39.2	46.0	59.4	43.6	41.9	39.3	1,C,ii,b
22341	Netherstow Lane, Lichfield	CN049L	46.7	43.2	54.0	67.4	47.6	45.9	43.3	1,C,ii,b
22478	Wood End Lane, Fradley, Lichfield	CN129S	49.0	33.3	53.9	59.0	51.9	49.0	33.4	2,C,ii,c
22642	Burton Road, Streethay, Lichfield	CN005L	68.5	63.6	74.8	80.0	68.9	66.4	63.3	1,C,i,b
22664	Burton Road, Streethay, Lichfield	CN005L	64.5	59.6	66.8	72.0	64.9	62.4	59.3	1,A,i,b
22669	Burton Road, Streethay, Lichfield	CN005L	64.5	59.6	66.8	72.0	64.9	62.4	59.3	1,A,i,b
22736	Burton Road, Streethay, Lichfield	CN005L	61.5	53.6	66.8	72.0	61.9	59.4	53.3	1,B,ii,b
22797	Burton Road, Streethay, Lichfield	CN005L	64.5	59.6	66.8	72.0	64.9	62.4	59.3	1,A,i,b
22853	Burton Road, Streethay, Lichfield	CN016S	69.9	56.7	74.5	79.5	70.7	69.2	56.4	2,C,i,c
22879	Burton Road, Streethay, Lichfield	CN016S	69.9	56.7	74.5	79.5	70.7	69.2	56.4	2,C,i,c

Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁵
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq,T}	Evening/weekend L _{pAeq,T}	Night-time L _{pAeq,T}	
22924	Holland Close, Lichfield	CN016S	69.9	56.7	74.5	79.5	70.7	69.2	56.4	2,C,i,c
22961	Holland Close, Lichfield	CN079S	54.5	49.4	63.6	69.1	54.9	52.6	49.1	2,B,ii,c
22989	Holland Close, Lichfield	CN079S	54.5	49.4	63.6	69.1	54.9	52.6	49.1	2,B,ii,c
22993	Meadow Croft, Lichfield	CN079S	54.5	49.4	63.6	69.1	54.9	52.6	49.1	2,B,ii,c
23033	Meadow Croft, Lichfield	CN017S	54.4	49.0	67.0	72.0	57.3	53.4	48.7	2,B,ii,c
23072	Dyott Close, Lichfield	CN017S	54.4	49.0	67.0	72.0	57.3	53.4	48.7	2,B,ii,c
23097	Burton Old Road, Streethay, Lichfield	CN079S	54.5	49.4	63.6	69.1	54.9	52.6	49.1	2,B,ii,c
23147	Burton Old Road, Streethay, Lichfield	CN019S	54.2	48.0	53.8	81.3	54.6	52.7	47.7	2,A,i,b
23175	Burton Old Road, Streethay, Lichfield	CN019S	56.2	50.0	57.8	85.3	56.6	54.7	49.7	2,C,ii,b
23242	Ash Tree Lane, Lichfield	CN078S	62.8	58.2	68.0	69.2	63.2	60.7	57.9	2,C,i,c
23264	Burton Road, Streethay, Lichfield	CN016S	65.9	52.7	73.5	78.5	66.7	65.2	52.4	2,BC,ii,c
23304	Ash Tree Lane, Lichfield	CN078S	52.8	48.2	58.0	59.2	53.2	50.7	47.9	2,BC,ii,c
23337	Ash Tree Lane, Lichfield	CN079S	54.5	49.4	63.6	69.1	54.9	52.6	49.1	2,B,ii,c
23427	Burton Road, Streethay, Lichfield	CN078S	61.8	57.2	66.0	67.2	62.2	59.7	56.9	2,A,i,c
23518	Wellington Crescent, Fradley Park, Lichfield	CN004L	51.0	47.4	54.7	64.7	52.2	50.2	48.6	1,A,i,b
23625	Ryknelnd Street, Streethay, Lichfield	CN004L	57.0	53.4	60.7	70.7	58.2	56.2	54.6	1,C,ii,c
24230	Fradley Distribution Park, Wood End Lane, Fradley, Lichfield	CN014S	44.8	43.5	51.2	61.2	45.5	44.5	44.3	2,C,ii,c
24447	Gorse Lane, Fradley, Lichfield	CN014S	41.8	40.5	51.2	61.2	42.5	41.5	41.3	2,BC,ii,c
24762	Dyott Close, Streethay, Lichfield	CN016S	66.9	53.7	74.5	79.5	67.7	66.2	53.4	2,BC,i,c

Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁵
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq,T}	Evening/ weekend L _{pAeq,T}	Night-time L _{pAeq,T}	
24839	Burton Old Road, Streethay, Lichfield	CN019S	54.2	48.0	53.8	81.3	54.6	52.7	47.7	2,A,i,b
24857	Wood End Lane, Fradley, Lichfield	CN130S	76.2	70.1	83.8	87.0	79.1	76.2	70.1	2,A,i,c
25097	Shaw Lane, Bromley Hayes, Lichfield	CN006S	46.7	34.0	44.0	46.1	48.1	44.5	34.2	2,C,ii,c
28123	Lichfield Road, Whittington, Lichfield	CN025S	55.5	52.0	69.7	78.0	57.3	54.4	51.5	2,BC,ii,c
28146	Lichfield Road, Whittington, Lichfield	CN007L	48.1	44.7	52.8	73.2	49.8	47.1	44.3	1,A,i,b
28337	Chester Road, Whittington Barracks, Lichfield	CN083S	42.9	38.1	57.5	63.1	43.5	41.4	39.0	2,BC,ii,c
29081	Common Lane, Whittington Barracks, Lichfield	CN083S	58.9	54.1	67.5	73.1	59.5	57.4	55.0	2,C,ii,c
29134	Common Lane, Whittington Barracks, Lichfield	CN083S	62.9	58.1	71.5	77.1	63.5	61.4	59.0	2,BC,ii,c
29256	Tamworth Road, Lichfield	CN083S	62.9	58.1	71.5	77.1	63.5	61.4	59.0	2,BC,ii,c
29428	Common Lane, Whittington Barracks, Lichfield	CN084S	46.8	36.4	57.8	61.0	47.6	43.9	36.4	2,BC,ii,c
29490	Chester Road, Whittington Barracks, Lichfield	CN083S	68.9	64.1	77.5	83.1	69.5	67.4	65.0	2,B,i,c
29572	Chester Road, Whittington Barracks, Lichfield	CN084S	48.8	38.4	61.8	65.0	49.6	45.9	38.4	2,BC,ii,c
29888	Sandy Lane, Lichfield	CN036L	43.5	38.7	45.4	64.3	44.1	42.0	39.6	1,A,i,b
29922	Sandy Lane, Lichfield	CN036L	43.5	38.7	45.4	64.3	44.1	42.0	39.6	1,A,i,b
29975	Whittington Barracks, Lichfield	CN084S	47.8	37.4	55.8	59.0	48.6	44.9	37.4	2,B,ii,c
29989	Heath Avenue, Whittington Barracks, Lichfield	CN036L	43.5	38.7	45.4	64.3	44.1	42.0	39.6	1,A,ii,b
30010	Heath Avenue, Whittington Barracks, Lichfield	CN036L	43.5	38.7	45.4	64.3	44.1	42.0	39.6	1,A,ii,b
30052	Heath Avenue, Whittington Barracks, Lichfield	CN036L	43.5	38.7	45.4	64.3	44.1	42.0	39.6	1,A,ii,b
30134	Heath Avenue, Whittington Barracks, Lichfield	CN036L	43.5	38.7	45.4	64.3	44.1	42.0	39.6	1,A,ii,b

Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁵
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq,T}	Evening/weekend L _{pAeq,T}	Night-time L _{pAeq,T}	
30168	Worcester Road, Whittington Barracks, Lichfield	CNo83S	62.9	58.1	77.5	83.1	63.5	61.4	59.0	2,B,ii,c
30246	Chester Road, Whittington Barracks, Lichfield	CNo84S	50.8	40.4	55.8	59.0	51.6	47.9	40.4	2,A,i,c
30522	Nottingham Road, Whittington Barracks, Lichfield	CNo84S	50.8	40.4	55.8	59.0	51.6	47.9	40.4	2,A,i,c
30592	Lichfield Road, Whittington, Lichfield	CNo25S	52.5	49.0	66.7	75.0	54.3	51.4	48.5	2,BC,ii,c
30600	Lichfield Road, Whittington, Lichfield	CNo25S	52.5	49.0	66.7	75.0	54.3	51.4	48.5	2,BC,ii,c
30770	Darnford Lane, Lichfield	CNo07L	48.1	44.7	52.8	73.2	49.8	47.1	44.3	1,A,i,b
30808	Darnford Lane, Lichfield	CNo07L	45.1	41.7	52.8	73.2	46.8	44.1	41.3	1,B,ii,b
31091	Back Lane, Whittington, Lichfield	CNo24S	57.0	51.7	68.6	71.6	58.8	55.9	51.2	2,C,i,c
31340	Back Lane, Whittington, Lichfield	CNo24S	54.0	48.7	68.6	71.6	55.8	52.9	48.2	2,BC,ii,c
31347	Broad Lane, Huddlesford, Lichfield	CNo20S	48.1	43.9	46.3	59.7	48.9	47.2	43.4	2,C,i,b
31367	Huddlesford Lane, Huddlesford, Lichfield	CNo20S	53.1	46.9	52.3	65.7	53.9	52.2	46.4	2,BC,ii,b
31466	Huddlesford, Huddlesford, Lichfield	CNo51L	49.2	47.2	54.1	73.3	49.7	48.4	47.2	1,A,i,b
31472	Huddlesford Lane, Huddlesford, Lichfield	CNo06L	53.2	48.2	51.2	70.8	53.9	52.2	47.7	1,C,ii,c
31505	Huddlesford Lane, Huddlesford, Lichfield	CNo21S	50.5	47.7	61.4	63.0	51.0	49.6	47.7	2,BC,ii,c
33376	Darnford Lane, Lichfield	CNo07L	45.1	41.7	52.8	73.2	46.8	44.1	41.3	1,B,ii,b
34767	Brookhay Lane, Lichfield	CNo04L	54.0	50.4	60.7	70.7	55.2	53.2	51.6	1,C,ii,c
701100	The Croft Leys, Handsacre, Rugeley	CNo03S	56.4	44.6	58.8	72.8	57.2	55.7	46.2	2,A,i,c
701099	Mill Croft Way, Handsacre, Rugeley	CNo04S	54.8	40.0	64.2	77.3	55.5	54.0	41.6	2,B,ii,c

Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁵
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq,T}	Evening/ weekend L _{pAeq,T}	Night-time L _{pAeq,T}	
701102	Station Drive, Handsacre, Rugeley	CN004S	59.8	45.0	64.2	77.3	60.5	59.0	46.6	2,A,i,c
701090	Burton Road, Streethay, Lichfield	CN005L	61.5	53.6	66.8	72.0	61.9	59.4	53.3	1,B,ii,b
701091	Lichfield Road, Lichfield	CN008S	56.5	44.7	64.2	70.0	59.8	54.1	47.0	2,C,ii,c
700648	Church Street, Whittington, Lichfield	CN024S	57.0	51.7	68.6	71.6	58.8	55.9	51.2	2,C,i,c
701101	Tuppenhurst Lane, Handsacre, Rugeley	CN034L	51.2	48.0	53.8	81.3	50.6	49.6	48.6	1,C,ii,b
700650	Fradley Junction, Fradley, Lichfield	CN035L	40.1	36.2	51.2	63.1	40.9	39.0	36.1	1,C,ii,b
700651	Fradley Junction, Fradley, Lichfield	CN035L	40.1	36.2	51.2	63.1	40.9	39.0	36.1	1,C,ii,b
700652	Lichfield Road, Lichfield	CN072S	55.0	48.0	55.8	71.9	58.0	57.0	50.6	2,B,i,c
700649	Cappers Lane, Lichfield	CN081S	57.2	52.1	67.9	77.0	45	43.6	46.9	2,C,ii,c
700631	Tamworth Road, Whittington Barracks, Lichfield	CN083S	65.9	61.1	77.5	83.1	66.5	64.4	62.0	2,A,i,c
700632	Tamworth Road, Whittington Barracks, Lichfield	CN083S	62.9	58.1	71.5	77.1	63.5	61.4	59.0	2,C,i,c
701066	Tamworth Road, Whittington Barracks, Lichfield	CN083S	45.9	41.1	57.5	63.1	46.5	44.4	42.0	2,C,ii,c
700647	Heath Avenue, Whittington Barracks, Lichfield	CN084S	50.8	40.4	55.8	59.0	51.6	47.9	40.4	2,A,i,c
701067	Heath Avenue, Tamworth Road, Whittington Barracks, Lichfield	CN084S	50.8	40.4	61.8	65.0	51.6	47.9	40.4	2,BC,ii,c
721011	Proctors Road, Handsacre, Rugeley	CN001L	50.6	46.3	52.8	71.6	51.4	49.8	47.9	1,A,i,b
721014	Wood End Lane, Curborough, Lichfield	CN035L	46.1	42.2	51.2	63.1	46.9	45.0	42.1	1,A,ii,b
721015	Gorse Lane, Fradley	CN014S	51.8	50.5	55.2	65.2	52.5	51.5	51.3	2,C,ii,c

Assessment location ID	Area represented	Measurement location	Existing baseline sound level (dB)							Data source coding ⁵
			For operational sound assessment				For construction sound assessment			
			Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}	Arithmetic average of night-time L _{pAFmax,5min}	Highest night-time L _{pAFmax,5min}	Daytime L _{pAeq,T}	Evening/ weekend L _{pAeq,T}	Night-time L _{pAeq,T}	
721019	Wood End Lane, Hilliard's Cross	CN014S	46.8	45.5	53.2	63.2	47.5	46.5	46.3	1,BC,ii,c
721029	Kings Orchard Marina, Streethay, Lichfield	CN020S	48.1	43.9	46.3	59.7	48.9	47.2	43.4	2, C, ii, b
721030	Whittington Common Road, Whittington, Lichfield	CN007L	38.1	34.7	44.8	65.2	39.8	37.1	34.3	1, BC, ii, b

Table 2: Data source coding key

Code	Data source type
1	Long-term measurement location
2	Short-term (linked to simultaneous long-term)
3	Short-term (using profile from non-simultaneous long-term)
4	Short-term using standard (National Noise Incidence Study ⁶ or other) 24hr profile
5	Specific validated prediction
6	Predictions from other sources (Defra noise maps ⁷ , etc.).
7	Generic levels

Code	Corrections applied
A	Data from above source applied directly
B	Correction applied for screening
C	Correction applied for distance from source
D	Minimum level cut-off applied.

Code	Distance from measurement
i	Data applied from a measurement at or very close to the assessment location.
ii	Data applied from a local measurement location at a greater distance but noted to have equivalent acoustic climate.
iii	Data applied from a distant measurement location where sound levels would be expected to be similar.

Code	Uncertainty
a	Data are considered highly representative of the prevailing sound climate
b	Data are considered representative of the prevailing sound climate, but variations in measured levels indicate that there may be a higher degree of uncertainty than for (a).
c	Data are considered to be an estimate of the sound climate, (e.g. taken from Defra noise maps, etc.).

3.3 Future baseline methodology

Construction

- 3.3.1 The assessment of noise from construction activities assumes a baseline year of 2017. As a conservative assumption it has been assumed that no change in baseline sound levels will occur between the existing baseline (2012/13) and the future baseline year of 2017.

⁶ BRE (2002), *National Noise Incidence Study, 2000/2001*.

⁷ Defra, Noise Mapping England, <http://services.defra.gov.uk/wps/portal/noise/>; accessed 26 July 2013.

- 3.3.2 Due to the duration of the construction work and as the precise timing of the highest sound levels would be different in each location, using baseline sound levels for 2017 as the start of the construction period, provides a reasonable worst case assessment.
- 3.3.3 The assessment of construction traffic is based on future baseline traffic flows for 2021, as a year representative of the middle of the construction period.

Operation

- 3.3.4 Changes in existing sound sources between 2012/2013 and 2026 may result in changes to baseline sound levels.
- 3.3.5 For major transportation sources, data for existing and future baseline operations have been reviewed. Where changes may occur between the existing baseline and future baseline (2026) situations, expected changes in baseline sound level have been derived. For example, expected changes in traffic flow, composition and speed have been used to calculate changes in sound emission from roads using the methodology from the Calculation of Road Traffic Noise⁸.
- 3.3.6 The changes to major sound sources which have been identified in this area are summarised in Table 3.

Table 3: 2026 future baseline changes in sound sources

Sound Source affected	Cause of change in levels	Change in sound levels (existing baseline to 2026 future baseline) (dB)	
		Daytime L _{pAeq,16hr}	Night-time L _{pAeq,8hr}
A5127 Birmingham Road in the vicinity of Wall	Increased traffic flow	0.7	0.4
A5127 Birmingham Road in the vicinity of Wall	Increased traffic flow	0.8	0.4
A51 in the vicinity of Whittington Heath	Increased traffic flow	0.8	0.3
Whittington Common Road	Increased traffic flow	0.8	0.3
A38 throughout Lichfield	Increased traffic flow	0.8	0.3
Darnford Lane	Increased traffic flow	0.8	0.3
A5192 Capper's Lane in the vicinity of Huddlesford	Increased traffic flow	0.9	0.3
Park Lane throughout Huddlesford	Increased traffic flow	0.7	0.3
A5192 Cappers Lane throughout Lichfield	Increased traffic flow	0.7	0.3
A5127 Burton Road in the vicinity of Streethay	Increased traffic flow	0.6	0.4
Wood End Lane, Curborough Area	Increased traffic flow	0.9	0.3
A515 throughout Riley Hill	Increased traffic flow	0.6	0.3
Netherstowe Lane	Increased traffic flow	0.7	0.7
A38 in the vicinity of Fradley	Increased traffic flow	0.7	0.7
Common Lane	Increased traffic flow	0.7	1.1
Grose Lane	Increased traffic flow	1.0	0.7

⁸ Department of Transport (1988), *Calculation of Road Traffic Noise*.

Sound Source affected	Cause of change in levels	Change in sound levels (existing baseline to 2026 future baseline) (dB)	
		Daytime $L_{pAeq,16hr}$	Night-time $L_{pAeq,8hr}$
Watery Lane	Increased traffic flow	0.9	0.7
M6 Toll	Increased traffic flow	0.7	1.0
A38 throughout Streethay	Increased traffic flow	0.7	0.7
A5127 Birmingham Road in the vicinity of Wall	Increased traffic flow	0.7	0.4

4 References

Building Research Establishment (2002), *National Noise Incidence Study, 2000/2001*.

Defra, Noise Mapping England, <http://services.defra.gov.uk/wps/portal/noise/>; accessed 26 July 2013.

Department of Transport (1988), *Calculation of Road Traffic Noise*.